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RECORDS.

Demobilisation has not been followed by any great increase in the amount of clinical reports published. Perhaps this was only to be expected; but something better might have been hoped. Many veterinary surgeons have been seeing more equine practice than ever before, and under altogether unusual conditions. Many more in civil practice have had during the same period an exceptional amount of work, not a little of which contained more or less of novelty. All this appears destined to pass without leaving any appreciable trace in our professional literature. Collectively, veterinary surgeons have probably never had so great and so varied an amount of clinical experience to draw upon; but they have certainly never been much more uncommunicative regarding their experience than to-day.

Many subjects might be cited concerning which veterinary literature ought to be richer from their experiences, and is in reality poorer. Lameness is still full of unsolved problems; as much, if not more than usual has been seen during the war: but actually less than usual has been written of it since the war began. The same could be said of the whole field of equine digestive disorders, which war conditions rendered more prevalent and serious than usual. Full of debatable questions as both these subjects are, the increased experience of them which veterinary surgeons have gained seems actually to have lessened their interest in them. Skin diseases and wound treatment, again, are subjects which assumed increased importance and underwent some new developments, but little has been written upon either. The one clinical subject which seems greatly to interest members to-day is the use of anæsthetics, which has been forced upon their notice by recent legislation.

Half the veterinary surgeons on the Register, whether they served with the colours or not, acquired much quite new and unlooked for experience under varied conditions. It is certain that this has considerably modified the ideas and methods of many individual members, and undoubtedly the effect upon the profession collectively will be considerable. That effect would be all the greater if members would awaken to the duty of recording their experience and conclusions. It is a duty which has never yet been properly recognised by the profession generally; and the war and its followings seems to have driven it from most men's mind. It is time to remember it.

SOME POINTS IN THE NATURAL HISTORY OF ALVEOLAR, OR PERIODONTAL DISEASE, IN THE HORSE, OX, AND SHEEP.*

By F. T. HARVEY, F.R.C.V.S., St. Columb.

"The *Tooth's* dark cottage, *eroded* and decayed
Lets in new *germs* through chinks that time hath made."
Waller.

Mr. President and gentlemen,—I am sensible of the honour of receiving an invitation, through your secretary, to read a paper on Alveolar Disease before your Association. The subject is one which has not received a great amount of attention from clinical workers in this country, especially in recent years, though there are several articles dealing with various dental affections in animals scattered throughout the veterinary periodicals. It was my intention at first to deal generally with alveolar affections as occurring in the animals mentioned, but it soon became evident that the subject was too large to be dealt with adequately in a single paper.

The late Sir William Osler said on one occasion that he who had made a complete study of syphilis had embraced the whole field of pathology in his purview.

In a less degree one may make a similar statement regarding alveolar disease, for the further one progresses in its study, the longer becomes the list of morbid states appearing to follow more or less directly in its trail. It is only in recent years that the far reaching effects of dental sepsis have been recognised in man, and even to-day many practitioners, both general surgeons and dentists, fail to appreciate its true gravity and importance in undermining the general health. It is not intended to assert that periodontal disease as occurring in animals, in any way assumes the importance that it does in man, especially as regards its frequency, but it is certain that it is more frequent and far-reaching in its general effect on our patients than is generally supposed.

My attention was first directed to the disease by a chance observation made many years ago, when examining the enormously swollen head of a young horse that had died just before my arrival at the farm. In those days the case would have been described as one of glossanthrax—whatever that might mean, and more recently, perhaps even at the present day, would be grouped under the general term of malignant œdema.

In the course of time it was noted that every case of acute malignant disease of the head unassociated with an obvious injury or wound presented similar or closely allied features. One always found a tooth, or more, loose, with the sockets in a gangrenous condition. Some of these cases were described in an article published in *The Veterinary Record* for January 12th 1918, and some of the specimens before you are from cases mentioned in that paper. In two private communications received from professional friends, at that time, it was suggested that the cases I had described were of the nature of malignant œdema. It will be seen, however, that to merely describe such cases as malignant œdema and finish there, is to beg the question. Why do the tissues become invaded or attacked by this class of organism at all?

* Presented at the meeting of the Central Vety. Society, London, on Thursday, April 1st.

It is not easy to start an anerobic growth in the tissues of an animal unless certain conditions obtain—such as the presence of dead spaces or wounded tissues which have been badly drained, and in their absence anerobes are unable to get a footing. It is no doubt true that the bacillus of malignant œdema is the most probable killer in these acute cases of head disease but, as will be shown, the invasion of the tissues by this organism is merely a terminal episode in a series of events, some of which may long ante-date the onset of the acute condition, and further, that it is the alveolar membrane which is primarily involved.

But there are other diseases of somewhat doubtful etiology especially as occurring in young horses, which are possibly more or less directly connected with alveolar disease. A striking feature of the disease is the frequency with which it exhibits symmetrical characters. Thus in a case of malignant œdema one can usually find definite evidence of an old standing process of erosion going on in the socket of the corresponding tooth of the opposite side from that in which the malignant process has started.

It appears that alveolar disease, especially in colts may be well established as early as the sixth month of life, or before, and in many instances may go on unrecognised for years. The course of this disease is largely influenced by environment, diet, and the resistance which the animal offers to bacterial invasion; while breed, and also the species are factors to be considered. As a rule the earlier in life the morbid process starts, the more destructive is the effect of secondary infections. once they start; and yet, curiously enough, it is more often than not that these cases fail to give any indications suggestive of dental trouble in their previous history. It is probably due to this fact, that alveolar disease in the young animals of the farm has received such scant attention in the past. The disease is probably often painless in animals, as it is frequently in man, and is then apt to escape notice save on examination. Actual suppuration in the alveolar sockets may be long delayed, and until this takes place with resulting pain, or the teeth become displaced, or other abnormal conditions develop there are few reasons for suspecting the teeth.

With the completion of dentition and the arrival of the adult state, alveolar disease becomes of less importance etiologically—for a time at least. In adultism there is an increasing strength and density of the bones generally, and any disease present in the alveoli may become arrested or develop slowly; but like a wound on the trunk of a tree, perfect repair of a damaged alveolus probably never occurs. Density of bone is a material factor in retarding the rate of erosion in alveolar disease and this fact is well illustrated in some of the specimens before you, where the lower jaw, possessing the harder bone, shows a more limited amount of disease.

In the young animal alveolar disease may kill outright, or in other cases lowered vitality and wasting occur, and thus predispose the patient to general disease and parasitism. Since January, 1918, I have known at least eight colts die as the direct result of the disease, and of these, six suffered from malignant œdema. In older animals alveolar disease tends to lower value and induce disability rather than actually bring about a fatal issue; although an old case of disease has occasionally developed a condition of general infection, but such cases are rare.

In the later or more advanced stages of the disease, as seen in the horse more particularly, there must be a continuous general poisoning of the system going on, and knowing the marked susceptibility of this patient to react to sepsis in other parts, such as uterine affections, etc.; we cannot but conclude that such mouths must have far-reaching results on the general health. With this, however, the usually recognised form of alveolar disease, the majority of the Fellows of the Central are better acquainted than I am myself.

Alveolar disease of the incisors is much less common in the horse as compared with its occurrence in the molars while in the ox the reverse holds good; since apart from actinomycosis, the incisors furnish by far the greater number of dental cases seen in cattle. An excellent specimen, however, of acute and fatal alveolar infection of the molars in a cow is included in the list of cases.

No case of periodontal disease has been met with by me in the sheep, notwithstanding a somewhat extensive search; and I have included this animal in the heading of the paper merely for purposes of comparison.

In considering the disease as usually found in books, one finds the description more applicable to its occurrence as seen in the adult or aged animal, but in the present paper the mouth still carrying milk or temporary teeth receives most attention.

Dollar (1) distinguishes two forms of Alveolar periosttiis:—the "chronic ossifying," and the "purulent"; but to these two varieties must be added at least a third one, in which the changes are those which characterise a rarefying osteitis. Here there is erosion of the socket, but the process proceeds very quietly, there being little or no discharge or smell, and some care is necessary not to overlook the disease at this stage. Pockets or holes, if present, are small, and not always easily found, for the mucous membrane at the gum margin being somewhat swollen, becomes raised in the form of a fold and lies in contact with the tooth. It is then necessary to depress the membrane in order to locate any holes or pockets that may be present. A fine probe may then be passed down into the alveolus for half an inch or more. This fold of membrane is protective to some extent, forming as it does a sort of valve-like covering to the eroded alveolus, and preventing or hindering food reaching the cavities.

Nature of Alveolar Disease and Caries.

There are certain essential differences in the initial stages of alveolar disease in colts, and dogs, or children. In the latter the disease is most frequently due to the presence of decomposing food lying around the alveolar margin, and the tooth itself is attacked, and later, or together with it, the alveolar membrane. The destructive process begins on the outside and progresses to the deeper parts. The process itself is a chemico-parasitic one, the inorganic matter of the tooth is dissolved by acids formed from the fermentation of carbo-hydrate food, and the remaining organic matter is destroyed by micro-organisms, and these latter also bring about changes in the alveolus. "Caries and periodontal disease are both traceable to the lodgement of food." Sir James Colyer.

In colts, and herbivorous animals generally, caries as an accompaniment of alveolar disease is extremely rare, and in only one of the specimens on the table is there to be found any evidence of an erosive process attacking the tooth itself; but doubtless, in the rare cases in horses and cattle in which caries does occur, the mechanism of its production is that indicated above.

In young horses, alveolar disease, particularly in the cases exhibiting symmetrical manifestations of it, begins quite frequently, in my view, well down in the socket or depths of the membrane, and spreads towards the gum margin. Very slight injuries are then sufficient to induce ulceration of it, and by an extension of the process the tooth may be loosened, or pockets, or holes, are formed. With erosion of the gum margin the surface continuity is broken, and the tissues may then be invaded by other

organisms from without, and in this way the rate of the destructive process going on in the alveolus may be quickened, and various secondary infections arise.

Pockets, Holes, and Inter-Dental Spaces.

Pockets or holes at the gum margin may often be found at an early age in colts, and they are important as affording a means of entry of virulent organisms to adjacent tissues. In the formation of a "pocket," according to Colyer (2), quoting Znamensky, there is at first an infiltration of the papillary layer with leucocytes, and the epithelium is destroyed. The gum also becomes infiltrated with leucocytes almost to the edge of the bone. Erosion of the mucous membrane follows, and then change begins in the underlying bone and alveolar membrane. The bone is first decalcified, then gradually transformed into an osteoid tissue, and afterwards into a connective fibrous tissue, which becomes infiltrated with leucocytes. The process gradually extends, absorption occurs, and spaces and pockets are formed. The condition known as "alveolar disease," "pyorrhœa alveolaris," or "gingivitis," is then established. The bone-changes generally are those of a rarefying osteitis. No doubt similar morbid changes take place in our patients as observed in man, allowance being made for certain etiological factors. The further course of the disease will depend on the nature of the animal's food and the character of the organisms gaining access to the pockets so formed, and their ability to gain a footing therein. Species play an important part here. In the ox the ray-fungus readily finds a starting point, while in the young horse perhaps the bacillus of malignant œdema becomes the most destructive.

In all cases there seems a marked tendency to the destruction of the interdental tissues, and the alveolar process is soon more or less destroyed. Spaces are thus formed between the teeth in which the food accumulates. The presence of food between the teeth is often said to be the cause of alveolar periostitis, but in many cases in our patients, and particularly colts, it is more often the result and not the cause of the condition; but in any case, when present it always adds to the trouble.

It would seem that in the case of very young colts the erosion or breaking down of the alveolar membrane is of a diffuse character, rather than in the formation of holes or channels in a limited area. An example of this is seen in Case 1. A tooth socket in this condition seems particularly prone to take on a gangrenous condition.

Injuries to the gum margin no doubt play a considerable part, from time to time, in the causation of interdental spaces, but they do not explain the whole matter. If the periodontal disease is due solely to mechanical injuries from mastication, why is the disease developed so early in colts, so rarely met with in cattle, and never to be seen in sheep?

The only article which I have seen dealing especially with the disease in colts is one by R. Paine, F.R.C.V.S., Cape Colony, entitled "Alveolar Periostitis in Young Equines." (3). "It is usually observed first when the animal is rising three years old, there being a slight enlargement along the upper surface of the superior maxillary bone, sometimes on one side of the face, but more commonly on both sides."

"In some cases pus forms below the temporary molars and later a fistula forms, while in other cases a bony enlargement forms at the base of the teeth. As a rule complete recovery follows if the temporary molars are removed in time."

This writer suggests that the condition is due to the awns of bearded wheat becoming fixed in the mouth, but is not sure about the point. It seems to be more common in some parts of the Colony than in others. It is interesting to note that in my early inquiries I also considered alveolar disease more largely a disease of three year olds, but it was soon found that it was equally common in younger animals.

Inter-dental spaces may thus arise in three ways:

(1) Developmental errors. These are usually symmetrical.

(2) Injuries by sharp bodies becoming fixed between the teeth, or otherwise damaging the gum margin, and in such instances are of irregular distribution, and perhaps limited at the commencement to one or two alveoli.

(3) By an extension of disease arising in the deeper parts of the teeth sockets, and so involving the gum margin and destroying the inter-alveolar process, and is frequently seen in corresponding inter-dental spaces.

The Symmetrical or Bilateral Features of Alveolar Disease.

In caries it is often seen that corresponding teeth on either side of the jaw are affected, and this is also true in regard to disease of the alveolar membrane. This feature is quite pronounced in colts but is much less frequently observed in cattle.

Inter-dental spaces of congenital origin are of course usually symmetrical, and there is a good example on the table in the case of the mandible of a young ox. Here, fodder infected with the ray-fungus gets packed in the space; the mucous membrane is attacked, and an invasion of the bone follows. In such instances, however, the lesions are secondary to a developmental error and are not true symmetrical diseases, as one side may be involved long before the other. Similarly alveolar disease occurring in a properly formed mouth, and determined by bruising or sharp substances in the food, might be found at any part, and is little likely to be bi-lateral or symmetrical. In general the symmetrical manifestation of a disease is an indication of some form of blood contamination or infection, and the organisms would then produce similar changes in corresponding parts of the body; or the disease might be a deficiency one, and due to the absence from the diet of something essential to its nutrition. In both cases the blood is the important factor. The latter view is largely held to-day concerning rickets. In the latter disease dental defects are of very frequent occurrence, forming practically part of the disease.

In my view, "deficiency" as regards the vitamine content of the diet does not play any very important part in the induction of alveolar disease in the horse, since we may find it present in animals which have been always well-fed.

On the other hand, the very early age at which the disease may be well established on both sides of the jaws in our patients is very highly suggestive of its hœmal origin. Only in the horse do we see such pronounced changes in the depths of the alveoli so early, and those of a symmetrical character. Diet or local injury is not a sufficient explanation, although doubtless each plays some part either in favouring or hindering the course of the disease. Infection would be likely to be either ante-natal or determined in early colthood: organisms reaching the blood stream may become arrested in the bone around the dental germs and there remain. They may ultimately die, or again assume an active phase after a long period of quiet. We see similar events in ante-natal syphilis in children, in which syphilitic teeth are common. The gonococcus may remain quiescent in a tissue or duct for years, until it is activated and again produces injurious results, and in a similar manner the germs of typhoid fever may remain dormant in a bone for years, and ultimately give rise to abscess formation.

Two outstanding points are, I think—firstly, that alveolar disease is especially prone to involve colts in a very grave form and in a way not seen in other animals;

and secondly, that colts also occupy an almost identical position in regard to "navel ill". Whether certain cases of early alveolar disease in colts are merely late expressions of navel-ill or some other general infection, it is at present impossible to say.

Alveolar Nodes or Splints. Facial Swellings.

Although very little information may be obtained by merely inspecting the mouth in the early stages of the disease, there is generally evidence of existing irritation in the deeper parts of the alveoli and in the adjoining periosteum of the maxilla or the mandible. The wall of bone around the premolars is at some points extremely thin, and such parts readily yield to any increase of intra-alveolar pressure, and a plastic periostitis is thus induced, resulting in the formation of nodes or diffuse swellings on the face. Such nodes are present in many of the specimens. Doubtless in some instances the swellings are of a protective or supportive character and they can be felt in the living animal, yielding when young to the finger pressure. In some of the dried specimens they are like small plates of bone stuck on the maxilla, but in the mandible the swellings are more diffuse, and are sometimes regarded as "halter splints". They rarely suppurate, but are often painful to the touch, and are important indications of the existence of dental irritation. Like splints on the meta-carpal bones, they often tend to disappear with age or after the dentition is complete. In other chronic cases the microbial infection induces considerable irritation of the periosteum and much swelling ensues, and it may involve the intra-orbital nerve. Softening and sinus formation follow in some instances. Goodall (4) alludes to the the fact that if from any cause the deciduous teeth are not shed as they should be, the two front molars often cause considerable tumifaction on the outer aspect of the face; but he does not mention the possibility of any fatal infection in such cases.

Acute Spreading Disease of the Head.

Acute cellulitis of the head as seen in young horses has long been recognised, but its position in veterinary nosology has been a doubtful one. Regarded during the greater part of the nineteenth century as a manifestation of anthrax, it was described under the general terms of gloss-anthrax, and anthracoid angina, and the late Professor Robertson (5) described in great detail the clinical manifestation of the disease under such headings. Modern writers, in their eagerness to get rid of the terms gloss-anthrax and anthracoid angina, have incidentally also dropped the disease which an older school of practitioners endeavoured with some success do describe; but, not knowing its etiology, they regarded it as of the nature of anthtax with local manifestations.

I am clearly of opinion that the disease so described was simply malignant œdema or some closely allied condition, and that it had no reference to those conditions of an urticarial nature, sometimes giving rise to alarming symptoms, more particularly in the ox, which are sometimes met with in practice. In the article on malignant œdema in Wallis Hoare's "System of Veterinary Medicine" the special liability of the tissues of the head to invasion is not mentioned, and yet it is by far the commonist seat of the disease. I am of opinion that at least a thousand young horses and colts die every year in Great Britain from this form of cellulitis, and that in practically every case the point of infection, or start, is an old-standing lesion of one or more of the alveolar walls. Alveolar cellulitis is essentially a disease of young horses, and I have rarely seen the condition in an animal over three years of age; but no doubt it does occur occasionally after injuries to, or operations on the teeth. Moreover, wounds of the mouth would be responsible for an occasional case, but I have not noticed any specia tendency of wounds of the buccal membrane to become infected with the organisms of malignant œdema.

In all animals wounds of the mouth tend to heal well, especially so in herbivora. Adami and McCrae (6) state that "Considering how the mouth is exposed to infection and trauma, it is remarkable to notice how relatively rare are serious inflammations of this region. In other words the protective mechanisms are here highly developed. Wounds of the mouth heal with extraordinary rapidity."

I have only seen one fatal case of cellulitis in a horse in three years—other than the form here considered.

Main Clinical Features of Alveolar Cellulitis.*

Incisors. The disease would seem to begin but rarely in the alveolar membrane of the incisors. It spreads more slowly, and the swelling is chiefly centred in the early stages, in the tissues of the upper or lower lips as the case may be, but it ultimately reaches the face, cheek, and throat. In all acute cases of cellulitis involving the upper or lower lips and unassociated with a wound, the incisor teeth should be carefully examined, and if any are loose or in any way show evidence of disease they should be at once extracted.

Free incisions and drainage of the infected tissues along with removal of any loose tooth can alone offer any chance of successful treatment. A delay of a few hours is fatal.

Lower Premolars. Cellulitis of the head having its starting point in the alveoli of the lower jaw is very characteristic. The animal previously supposed to be in good general health is found with tongue protruded, and with more or less swelling over the mandible and inter-maxillary space. Anxious for food, any taken into the mouth is again dropped. In the early stage the mouth may be opened and inspected. At the gum margin of the first or second pre-molars there is usually a collection of yellowish diphtheritic material. The side of the tongue lying in contact with this mass is early infected, and a patch of similar material is soon seen on the organ. From this time on, the tongue symptoms predominate, and altogether overshadow the original condition. Hence the terms Malignant Glossitis, or Gloss-Anthrax, formerly applied to malignant alveolar disease of the lower jaw.

The disease runs a very rapid course and the general toxic state may outrun the local manifestations. In such a case the colt may be found dead in the field or box, and the cause of death attributed to lightning stroke or other form of injury.

In cases where the animal survives two or three days the head becomes enormously swollen, and is rested on the ground. The tissues become necrosed, and the stench horrible. In some instances I have seen the swellings become greatly reduced just before death.

Upper Premolars. In Malignant Œdema starting from the upper molars attention is often first drawn to the nostril of the affected side. The waves of air cause a snuffling sound, and yellowish serum collects around the nostril. In a few hours the nostril is blocked, and the swelling extends in all directions. In this form of the disease, more particularly, the post-orbital region is early involved. In fact snuffling respiration with a bulging of the post-orbital fossæ is very suggestive of the existence of a deep cellulitis of the head. I would go so far as to say that such a condition occurring in a young horse together with a rise of temperature is an indication to promptly examine the teeth of the animal.

In all the cases of the disease starting in the upper jaw which I have seen, the tongue has practically escaped infection. There is the same swelling of the gum

*This term is used for convenience, but the alveolus is merely the focus of infection.

margin of the affected alveoli, but the dense epithelial covering of the dorsum of the tongue resists infection, and the organ escapes. The line of spread is towards the throat, hence the terms Anthracoid or Malignant Angina, formerly used in describing this form of œdema.

The appearance of the animal in this condition is not so ghastly as when the mouth is chiefly involved, but the course is equally rapid or more so, œdematous laryngitis being a frequent complication.

It will be seen from the specimens that the erosion or destruction of the bony wall of the alveolus on the nasal side is an important feature in favouring the spread of the infection along the nose and sinuses; and thus the clinical features of malignant œdema of the upper and lower jaws rest upon anatomical grounds, and not on pathological ones.

Death is the usual termination in these cases. In the late stages, or when there is much swelling, it is impossible to get the mouth open, so that no time should be wasted in expectant methods of treatment. Fomentations and liniments constitute wasted effort, and friction increases the absorption of toxins. Extraction of teeth and free incisions seem the only hope, but there is some danger of excessive bleeding in carrying out this treatment; while serum treatment is unlikely to be of service on account of the avalanche character of the disease.

Disease of the Jaw in Cattle.

In cattle, apart from an occasional case of cellulitis, or the fixation of a foreign body between the teeth, or trouble resulting from failure to properly shed the deciduous teeth, by far the more common cause of alveolar disease of the molars is the invasion of the parts by the ray fungus. This disease of the jaw is seen frequently on some farms, and never met with on others. Ordinary abrasions on the gums, or developmental errors, will occur on all farms, but if the ray fungus is absent from the fodder, serious disease does not follow. A striking feature is the immunity of the horse to actinomycotic disease. On some large farms I have seen many cases of alveolar disease in cattle induced by the actinomyces, but never a case in a horse. The equine soil is fortunately not favourable to its growth. An extraordinary feature in bovine pathology is the very marked increase in the number of cases of actinomycosis one meets with to-day in comparison with, say, twenty years ago. The reduction of labour, carelessness in preserving the fodder, uncleaned roots, and dirty and earth-contaminated feeding pens, are probably to some extent responsible, but the main factor is failure to isolate affected animals.

The rate of invasion of an alveolus with the ray-fungus—once the adjoining mucous membrane has been infected, is remarkable, and it spares no tissue in its advance. The swelling in the softer tissues of the bones induces bu ing of the compact bony layer, the latter gives way c certain points, the skin ulcerates, and there is then an pen wound. Secondary infections now contribute their quota to the general mischief, and the case is no longer one of actinomycosis pure and simple. Bacillus proteus, B. Coli communis, and Pyogenic cocci may in turn invade the tissues, and produce their characteristic lesions. And we here, perhaps, find an explanation of the failure of iodide of potassium to exert any great influence for good in actinomycocis of the jaw. If we destroy the ray fungus the other organisms remain to carry on the mischief. We cannot restore the destroyed alveolus, and, what is more important, we cannot obliterate the large bone-cavities produced by the ravages of the disease, for the walls of compact bone tissue do not recede.

Early extraction of the tooth of the alveolus first attacked, and trephining and drilling into the bone from without would seem indicated. In the earliest stage only will iodide succeed in arresting the process.

The Influence of Chaff and Diet generally.

If we admit that alveolar disease begins very early, especially in colts, it is easy to see the possible injurious effects of feeding them on chaff at too young a period. Foals when a few weeks old may have access to chaff given to the dam with her corn. Bruising along the gum margin in such cases may occur and lay the seeds of a morbid condition, which may last the lifetime of the animal. I think, as a prophylactic measure, chaff, particularly any hard varieties, should be sparingly used during colt-hood, and not at all during the first two years of life; or perhaps better not until the two first permanent molars are properly up.

After seeing colts die from dental trouble, or suffer from life-long disability, one cannot but be impressed with the great necessity of natural and clean feeding in early life. How often we see colts kept for long periods in small paddocks, and the food taken to them. Here they are nibbling the almost bare ground after grass which they are unable to obtain, and their gums and buccal membranes generally become earth infected. Long after, when grazing under good conditions, malignant œdema or some other disease may assert itself and the true history of the case be altogether overlooked.

Lameness.

It is not intended to assert here that one should look at the teeth in order to diagnose lameness. I believe somebody from "The Emerald Isle" wrote not long ago that a bacillus of lameness was necessary in order to explain all the phenomena or difficulties met with in solving certain lamenesses. The cases furnishing specimens 6, 12, and 14 showed lameness, and two others exhibited motor troubles. We cannot get over the fact that many lamenesses not usually regarded as the result of infection are really brought about in this way, through a chronic toxæmia. It must be admitted that a horse doing hard work and carrying at the same time a diseased tooth or alveolus is more likely to develop neuritis, synovitis, or chronic arthritis, than one having no breach in his defensive armour. It would not seem a wise practice to fire a horse for splints or some other condition, and leave a dental defect unheeded.

Short Summary of some of the Features of Alveolar Disease in Horses.

There can be no doubt that the disease in the majority of cases begins quite early in life, and that its etiology is complex.

Among the animals of the farm, colts are particularly subject to those infections included under the general term of "Navel Ill." "Any inimical condition affecting the osseous system is likely to show itself in the alveolar process at an early stage, the reason being that this is a transient structure." *Colyer.*

A colt may carry the infection of navel ill in his tissues without exhibiting any clinical expressions of the same. In such cases a local injury may well produce far reaching effects, the tissue resistance of the animal being lowered.

The natural food of the foal is milk and grass, but he often masticates hard food. Two kinds of injury may result:—

1. The alveolar margin may be injured and a breach made in the mucous membrane.

2. The deeper tissues of the alveoli may be bruised indirectly from undue pressure during mastication.

The alveolar membrane being thus damaged it becomes a favourable centre for the growth of organisms reaching it by way of the blood stream. A rarefying osteitis may be thus established. Secondary infections may start in the damaged alveoli and destroy the animal; but the tendency to this occuring is not pronounced after the third year of life.

Spread from one alveolus to another occurs frequently through erosion, or destruction of the inter-dental tissues. In this way the fourth molar, which is the first permanent tooth to appear, may have its membrane infected by extension of disease from the cavity of the third tooth.

The shedding of the first and second temporary molars is a critical event in the history of the disease.

After this period the disease seems in many instances to quiet down, and may trouble the animal but little for years. This is the period of adult life. Resistance to the inroads of periodontal disease is at its height.

After an indefinite period the disease again becomes active. The third and last stage is reached. The teeth are loose, the animal quids his food, fœtor is marked, and the horse becomes prematurely old.

Alveolar disease beginning thus early in life may continue to the end of the animal's existence.

ILLUSTRATIVE CASES AND SPECIMENS.

(I) **Alveolar Disease in a Foal.** The maxilla of a foal from a case of Navel ill. I have introduced the case here because disease involving the socket of the right premolar was found to exist post-mortem.

Considerable erosion of the alveolar wall, especially on its external margin, has taken place, with resulting large cavity formation. Food has already become insinuated between the first and second teeth, and there is some thickening of the maxilla well above the tooth, and the latter is quite loose. There was no zone of inflammatory tissue in the mucous membrane covering the gums, and unless the part was specially examined the condition would have been overlooked.

I regard it as an important find; it illustrates the very early age at which alveolar disease may be already established in a colt. In my view, it is this state of the alveolar membrane which pre-eminently favours the onset of acute necrosis or of malignant œdema; examples of which are to be found in cases II, III and IV. Or the animal may go under from some other acute infection, such as tetanus. The possible terminations of such a condition however, are numerous.

(II). **Acute Infective Disease of the Alveolus of the First Pre-Molar (left) of the Mandible of a yearling Colt.**

January 25th, 1920. A colt about eight months old was seen at 10.30 a.m. to be swollen around the cheeks, and the tongue was hanging out of the mouth; the breathing was noisy. The animal tried to eat his usual morning allowance of corn, but was unable to do so. I arrived at the farm at 2 p.m. and found the patient dead. The head was obtained.

The Head. There was a good deal of yellowish jelly-like exudate under the skin of the cheek and between the muscles. No gas. The tongue was swollen, especially on the left side of the middle third, so also was the floor of the mouth. There was a yellowish, tough, diphtheritic material around the gum margin of the left lower first premolar, and the tooth was quite loose. On moving the latter angry-looking stinking serous material welled up from the depth of the socket. The tooth behind was also obviously involved, or at least its socket. Apart from what has been described above, there was very little to indicate the presence of an acute fatal infection starting in an alveolus, and I have no doubt that without examining and testing the teeth individually the nature of the lesions would have been overlooked. Such cases, if not seen within a few hours of the commencement of the swelling, are found dead, and give rise to much speculation. This colt had never had any chaff, the pasture was fairly good, and not overgrazed: in fact it looked a clean grazing site, but it was near a sewage irrigation field. Crushed oats had been allowed him once daily. The previous history of the colt was good but a foal from the same dam born a year earlier had a deformed jaw. The mandible with the tongue only is before you. The appearance of the part has been altered somewhat in the boiling. The Specimen has been hardened in formalin and salt solution.

(III). **Necrosis of the right mandible in a colt.** January 23rd., 1918. Shire colt, eight months old. The animal was noticed to be out of sorts on the 21st., and the next day (22nd), the head was swollen and he was unable to feed; the tongue was protruded, and marked foetor was noticed. On the 23rd. the swelling had reached the throat. There was much swelling around the nostrils, lips and cheeks, particularly on the right side. The mouth was open, the tongue protruding, and the under lip pushed forward and downward. Around the right lower incisors there was a mass of yellowish diphtheritic material, and a similar deposit was seen on the inside of the cheek and tongue. The three incisors were loose, and their sockets necrotic; the colt was unable to take fluids, and hung his head almost to the ground, the nostrils were clear. The loose teeth were removed, the parts freely incised, and painted with iodized phenol. Eusol baths were employed. Some improvement followed, the swellings declined, and the colt took food. Death occurred on the 20th. day of the illness.

The specimen shows very extensive necrosis of the jaws, reaching back to the second pre-molar. The alveoli of the 1st. and 2nd. pre-molars of the maxilla of the same side are also diseased—and deeply so, as a facial node is already to be seen well above the second tooth. The animal had been eating chaff, was frequently in a dirty yard, and lived generally under unfavourable conditions.

(IV). **Necrosis of the left maxilla in a colt.** Three-quarter bred Shire colt, about 8 months old. Seen on January 24th., 1918. On the morning of the 23rd. he came to his feeding-place slowly, instead of with his usual trot, and fed very slowly. The owner saw later in the day that a swelling had appeared along the face, and that there was a nasty-smelling discharge coming down the left nostril. At 5 p.m. on the 24th, I found the left eye closed and the nostril blocked. Tongue not involved. The foetor was very marked, and the head carried close to the ground. Death occurred on the following day.

It will be seen that there was a considerable necrosis of bone, the alveolus of the first pre-molar being utterly destroyed. The corresponding tooth-socket of the right maxilla was diseased, erosion and pocket formation being evident. It is probable that the latter condition had previously existed also on the left side, and that here an anærobic infection had become established and killed the animal.

These two specimens well illustrate the very destructive lesions sometimes to be found following an apparently unimportant and unrecognized morbid condition of the alveolar membrane in young colts.

(*To be concluded*)

Sir Arthur Boscawen, Parliamentary Secretary to the Ministry of Agriculture, states in a written answer that it is anticipated that the Tuberculosis Order, either in its present form or slightly amended, will come into operation at the same time as the Milk and Dairies Act. The possibility of introducing a system whereby herds may be guaranteed free from tuberculosis is under consideration by the Ministry of Agriculture.

NATIONAL VETERINARY MEDICAL ASSOCIATION

THE CENTRAL DIVISION (LONDON).

(Concluded from p. 449.)

ELECTION OF REPRESENTATIVES.

Prof. Wooldridge moved that Mr. J. W. McIntosh should be re-elected as the representative for the Council of the Victoria Veterinary Benevolent Fund.

Mr. Samson seconded and the motion was carried.

Mr. Mulvey proposed that the present representative for the Council of the National Veterinary Medical Association be re-elected.

Prof. Wooldridge moved as an amendment that the President and Messrs. J. W. McIntosh, S. H. Slocock, J. Willett and Professor Macqueen be the representatives.

Mr. Mulvey withdrew his motion and seconded the amendment of Prof. Wooldridge. This was put as the substantive motion and carried unanimously.

The PRESIDENT replying to a question, said that provision would be made for the item of "morbid specimens" to come on before papers, but that night he would adhere to the agenda.

"A civilian's appreciation of the work of the R.A.V.C. during the past war," paper read by Major F. Hobday, appears at p. 444.

Capt. REES-MOGG said the Society was greatly indebted to Major Hobday for a very interesting paper; and they would all congratulate him on looking so well after five years strenuous service. He did not think the author enlarged quite enough on the duties of the veterinary officer up at the front. The duty of the Army Veterinary Service was to lessen the wastage of animals, and the chief way to do that was by preventive work at the Front. Leaving out wounds from shells and bombs, he supposed that by far the largest number of what might be termed preventable casualties were due to debility, and the usual concomitant of debility—mange. He would not like to say how many thousands of horses were lost through this cause. The rations were sufficient, except at one time, owing to steamers carrying rations being destroyed; with that exception the ration was sufficient to keep the horses in good condition, if they got it—in many cases they did not get it. Owing to bad animal management many thousands of horses were sent down to the base suffering from debility. Every day of his service was spent up at the Front, and it was a very difficult task for them to teach animal management there. Many of the O.C. of units who were in charge of the animals had had nothing to do with animals in peace times. Veterinary officers at the front, if they did their job properly were preaching animal management morning, noon, and night; going about giving lectures and demonstrations the whole time—in fact animal management was the only thing that mattered at the front, and if the officer was not a good horse master he was absolutely useless. He thought the important part of animal management was not sufficiently appreciated. At any rate two or three years after the war started a new department was started dealing entirely with animal management. They started first of all with a wagon line officer in charge of the artillery, and then a horse adviser at Corps Headquarters; then a Major-General was given charge of the whole thing at G.H.Q. The necessity for this new Department was evidence, that animal management was thought a very important thing. Obviously, at the front it was impossible to treat anything which would take long to recover unless they had stationary billets, but then they never knew for how long they would be stationary. Of course only the simple cases were evacuated to the bases; their orders were never to evacuate anything which was likely to take a long time to treat.

Owing to the ground in France and Belgium being heavily manured, if slight sores in the heels were not attended to promptly they got a huge sloughing of the heel as big as the palm of one's hand, which sometimes went as far as puncturing the joint. This was especially prevalent with the hairy heeled horses—the valuable Shires. In the early part of the war this was one of the most prevalent of the troubles going, not counting debility. Other serious diseases came on afterwards, and by far the worst was what they called specific ophthalmia, no one seemed to know much about it, and he did not think anything was found out as to the cause or treatment. He sent specimens to a human eye specialist who told him he had made cuttings after freezing the eye, and found the ciliary process was the chief part which was diseased. The horses get a slight discharge and if they had a long single attack or a second attack they nearly always went blind, and it was a dreadful thing to see hundreds of valuable Shire horses being slaughtered owing to blindness.

It was not always easy up at the front to say if a case was mange or not. Where they had horses with long coats standing in the mud it was impossible for them to be groomed properly. He had often found horses which looked clean to be absolutely filthy underneath after they were clipped. So what it came to was whether they would have horses clipped and free from mange, or whether they would clip them and stand the chance of losing them—for a great many horses did die from exposure after being clipped. He always advised having the head, neck, and withers clipped; a good bit of the withers, right back down about 24 inches each side. If the horses were clean there they could take it that 95% of them were clean all over. When he had his Division clipped, about 3000 horses, he found about 45 cases of sarcoptic mange, and he would defy anyone to say, when they had their coats on, that they were suffering from mange. In the winter the horses did not itch, but they did in the summer. Owing to finding one case of mangs in a battery he had the whole of the horses clipped and discovered 40 out of 160 horses with bad mange which must have been going on for several weeks. Up at the front, clipping the horses all over was wrong. He did not think so during the first year of the war but he earned better afterwards.

Capt. A. L. WILSON said he met Major Hobday in France, in 1915. Afterwards Major Hobday came and instructed them in the art of administering mallein by the intra-dermo-palpebral method, which they used afterwards exclusively. Owing to a certain amount of trouble with some officers, a veterinary officer was appointed in each hospital to carry out the duties entirely, and the duty fell to him in his hospital, No. 4. He believed he malleined about 50,000 horses per annum. After one got used to it, one could do 250 horses in half an hour under favourable conditions, and next day diagnose the cases as quickly as one could walk, with no difficulty in picking out a reactor at an early period. He thought it preferable to the ordinary method, which they could use as a check if they wished. Within 48 hours they could retest with neck mallein, and it was a great guide if they had any doubt about the original reaction.

He came in contact with Major Hobday's hospital after he had left it. During his last few months in France he was in command of the next hospital, and he saw Major Hobday's hospital demolished by Hun prisoners. When he left the place was a wilderness, and

they were busy taking up the concrete standings Major Hobday had put down. In addition to hospital work he had the duties of area veterinary officer to carry out. For two years he was in charge of the Dunkirk and Calais areas, and had to cover an area of about 40 miles by 15 miles in a motor car to inspect units. Towards the end of the war special area officers relieved them of a good deal of the work.

Capt. Rees-Mogg had spoken of clipping. He had had a large experience of mange, and he advised clipping horses all over about the end of October or beginning of November. After that they should clip the neck and head and withers, and round the root of the tail. That laid bare the spots at which infection usually commenced. If the withers were clipped they would detect mange in the early stages in 95 cases out of a hundred.

As to ophthalmia, they had a special hospital, No. 19, at Calais, with about 500 cases. All sorts of things were tried, but so far as he knew they did not the slightest good. In his original No. 4 hospital they tried many things, and found that after the animal was apparently cured the disease recurred and the horse ultimately became blind. After the Armistice they simply butchered or sold in France all cases of ophthalmia. The carcases fetched a good price, as the French did not mind eating them. After the Armistice they carefully examined all horses to see that none which were affected came to England; and he thought it was a testimonial to the work done in France that so little of this disease was existent in England, seeing that France was saturated with it.

Mr. A. E. WILLETT said the first part of his foreign service was in a very bad district—Salonika, where with 8 or 9 men he was perched about 15,000 feet up, with four tents, and told to carry on. Being only a detachment of a hospital he could tell them it was a very up-hill game. His worst experience was with debility, and in March, 1917, he passed down 1,800 debilitated mules. In one week he had 60 dead in his corps, and these had to be disposed of. They blasted a big hole in the rock, and dragged the carcases to the hole and left them. The vultures and wild dogs quickly stripped the carcases, and the skeletons were thrown into the hole. It was a horrible thing to see debilitated mules like that: no doubt a result of shortness of rations, due to enemy action, and heavy work owing to there being too few animals for the job with so many sick. From what he gathered from Mr. Hobday's photographs the conditions in France were almost ideal. He was two months at Rouen, No. 15 Hospital, which he brought from Salonika, and he considered it a palatial show. He appreciated fully the words of Capt. Rees-Mogg as to the feelings of officers at the Front who were not able to treat some of the interesting cases of wounds, etc. The conditions under which a man in charge of a unit worked were very heart-breaking, for it was hard for anyone with experience to settle down to passing animals down or shooting them.

Professor REYNOLDS said it was quite impossible at this meeting to discuss fully the matters Major Hobday had introduced. The subject of Debility would alone afford a discussion for a whole evening. It was his good fortune to serve for two years in a hospital in France, and his further good fortune to be posted to surgery. This was his particular bent, and therefore he was all the more surprised that he was put to it. The number of quittor cases Major Hobday had mentioned would certainly cause surprise to civilian veterinary surgeons. They would hardly be able to realise what it meant to have 150 quittor cases continually under their care. The number ranged from 80 to 150 during the two years he was there, and if they considered the amount of work this entailed they might wonder how time was found to do anything else. In 1916-1917 the number of animals in the particular ward he had charge of varied from 500 to 1,000, and they were all surgical cases. It was only by gradually building up the organization of one's section and training men for different posts that the necessary work was able to be got through. Then, sometimes when one had got a man well trained for a particular job, the O.C. would calmly tell you that he was sending that particular man to another job. The second year he was in France the hospital was turned into a Reception Hospital; and only those who had been in such a hospital could appreciate the amount of work and the class of cases they were called on to deal with. Later on he went to Mesopotamia. In that country the organization of the R.A.V.C. was the same, more or less, as in France, but the greater distances and the less efficient means of communication made a difference in the carrying out of the work. There were Veterinary Officers with the groups of units at the Front, and the Mobile Veterinary Sections were the same. There were three hospitals; the biggest at Baghdad, one at Amarah, and one at Basrah. All the animals in the Advance area came down to the hospital at Baghdad, and when this one became overcrowded, animals were transferred to other hospitals. The distance between Baghdad and Basrah, however, is about 500 miles, so horses were only sent there in case of absolute necessity. Animals sent down country went in barges by river. Animals evacuated to hospitals often had to walk long distances: in this event only those capable of walking were sent. The chief causes of inefficiency in Mesopotamia were the same as in France, and probably the same that are always responsible in any campaign—debility and lameness. Speaking from memory he would say that of all cases coming into hospital about 30 % were debility cases, 30 % lame cases, 20 % wounds and injuries, and the remainder various. These percentages were about the same both for horses and mules. Proportionally more mules were used in Mesopotamia, and in addition to the large draught mule they had the small transport mule. In France one frequently ran up against rough customers among the big mules – some were devils; but even so, they could not hold a candle to some of the small mules they had to deal with. The Turks had a way of holding them. Two or three of them would get hold of the mule, and one would endeavour to get hold of the end of one of the mule's ears with his teeth. This seemed to have a very sobering effect; more efficient than a twitch. He had seen Indians do the same. With regard to the various diseases met with:—During the two years he was in France he dealt with 1,000 to 1,500 quittor cases: in Mesopotamia in 12 months he operated on six only. In France he used to hope he would never see another quittor case as long as he lived, but he must say he had the greatest pleasure in operating on the six in Mesopotamia. Mange, too, was not so prevalent. In the beginning of the campaign it hardly existed, but in 1918 there was a little more, owing probably to infection from captured animals—frequently these were badly infected. Glanders, too, was prevalent in the country: in the animals captured from the Turkish Army, in the native ponies in the towns, and especially so among the animals brought down by the refugees from the north. By using the same means as those employed in France, Glanders was practically non-existent in the Army animals. Another disease encountered that was not met with in France—at least not until the latter part of the War, was Epizootic Lymphangitis. This was a disease one had to be ever on the look out for, otherwise it would have spread very rapidly. Ophthalmia occurred, but he understood it did not make its appearance among the Army animals until 1917. In 1918 something just under one per cent. of the animals coming into hospital suffered from the condition. Biliary Fever (Piroplasmosis) was common among the horses in

summer time. This disease was treated by intravenous injections of quinine.

The running of the hospitals there was very little different from that found in France. All the animals were carefully inspected before admittance. Suspected skin cases were sent to the skin ward; cases of contagious or suspected contagious disease were sent to the isolation lines; all other cases were kept in the reception ward for 48 hours while they underwent the mallein test, afterwards they were drafted to the various wards of the hospital according to the class of disease from which they were suffering. They had European officers and non-commissioned officers, but all the men were Indians. The difference in the food and the cooking of it for the various castes among the latter made extra work. The disposal of the manure was more strictly carried out: all of it had to be burned. In summer time this was easy owing to everything being so dry, but in winter time, during the rains, it was a very difficult matter; then it had to be effectively buried.

The disposal of horses unfit for further service was also a difficult matter. After the signing of the Armistice, all horses over a certain age had to be destroyed or sold. Owing to the outcry at home about selling animals to the Arabs, all cast animals were destroyed, and as there were no horse-butchers in Mesopotamia, nor any arrangements for salving the carcases, they were skinned and buried. Much of the transport was done by bullocks, so they had some cattle practice. In addition to the transport bullocks there were large dairy herds for supplying milk to the hospitals and troops at the different depots. These animals were all under veterinary supervision, and a look out for rinder pest had to be kept, and this had to be controlled if it occurred.

After leaving Mesopotamia he, and four or five other Veterinary Officers, were held up in India owing to the trouble with Afghanistan, and were sent to the North-West Frontier. Although they had thought it was only right that they should be held in reserve until it was seen whether their services were required, they had felt somewhat aggrieved that after serving in Mesopotamia, and being on their way home for demobilization, they should be sent up to the Frontier to posts which they thought men on the Indian Establishment should have filled. In his youth he had heard much of the Khyber Pass, but he had never dreamed of going there. However, he had had the good fortune to go the greater part of the way through the Pass, and certainly it was a sight worth seeing. The two most serious diseases he saw on the Frontier were foot-and-mouth disease and rinderpest. He supposed he was right in saying these diseases were the cause of the breakdown of the transport.

Prof. G. H. WOOLDRIDGE said as one of the unfortunates who were not able to go out he was perhaps in a better position to appreciate what had been done, both by the permanent officers of the R.A.V.C. and the temporary officers—who were civilian veterinary surgeons. Members of the profession owed a debt of gratitude to those who had given their services and had undoubtedly brought the profession into a much better position than it was formerly. He had heard from officers of the combatant and other non-combatant services most glowing eulogies of the work carried out by veterinary officers. He agreed that it was impossible to discuss many of the points that had been raised at a meeting like that. At the same time a discussion on some of the diseases and the methods of treating them ought to be brought forward in papers, so that they could be discussed. Some of the conditions which they did not meet with in ordinary practice they could learn about; whilst as to other conditions those who had not served during the war could express some opinions. He had in mind the mallein testing which had been referred to. Captain Wilson said that the so-called intradermo-palpebrel test was second to none, both for accuracy and expedition but he rather qualified that by adding in his next sentence that it could be checked afterwards by the neck test. That conveyed to his mind that Mr. Wilson thought fallacies might arise which could be checked by the old method, and that in his innermost mind he thought the older was the safer and sounder method. That was the thing they wanted to get hold of. He had not had a great experience of the new test, but from what had been published he gathered that it was certainly the most expeditious, but was probably subject to a larger margin of error than the old method. A discussion of this would be very valuable; and the same remark applied to other diseases, such as mange. He believed that during the war methods of treatment of this disease were changed very frequently, and consequently much might be said on the subject of their respective values. Major Hobday had referred to the topsp-turvy state of affairs by which he found himself under the command of an old pupil, but he thought it was a matter for congratulation for anyone to find that one whom he had been instrumental in teaching had gone ahead. One of the few sources of satisfaction which the war had brought him was that so many of the officers for whose training he had been in part responsible, had done such good solid work.

The PRESIDENT said he entirely agreed with the last speaker as to the importance of having the experiences of the war discussed. It was a pity so little had been published. When one comprred the free flow in the medical press with the little which had appeared in the veterinary press one could only feel regret. He thought the editors of their periodicals should be stimulated to get those who had experience to write about it.

MAJOR HOBDAY said he had not had much time to prepare a paper, as he was asked to fill a gap, and he had considered several headings, two of which dealt with specialised subjects, but had eventually decided upon the one brought forward this evening. He agreed with what the President said as to the very few matters which had been brought forward since the war ended, and some of them were of vital importance. Unless this was attended to at once much valuable information would be lost. The "pukka" army men were a little modest in coming forward, and the younger men would be diffident unless led by some of the older men. Speaking as a civilian he did appreciate the way the R.A.V.C. did its work. When they saw the well groomed army officer they might imagine that he did not have the rough and tumble which they experienced in civil life, but in the past five years the army man had shown that with the loyal help of his civilian *confrères* he was able to organise a big show and make it run so well that the R.A.V.C. had certainly received as much praise as any other branch of the service. He would like on some future occasion to hear the intra-dermo-palpebral test discussed, for he was a warm advocate of it. He thought Professor Wooldridge misunderstood the remark of Mr. Wilson. By the test one got the re-action in one eye, and had the option of doing the other eye the next day if confirmation was required, or if they liked they could do the neck test. There were two reasons for doing the neck test if confirmation was wanted, one was that another kind of mallein was used, and the second was that the injection was given in a place and in a manner with which at that time they were more familiar. It was because of the opportunity to use it upon tens of thousands of cases that the new method jumped into favour—it was the rapidity with which the thing could be done; thousands could be inspected per day without fatigue, and that could not be done by the neck method. The long coats of the horses, and the dark, short days, made the neck test very troublesome; in addition, the animal was generally

sore, and when there were a number of horses paraded together and the inspecting officer went to touch the neck of one it would sometimes run back, and upset the whole line. Another disadvantage was that if the unit had to march suddenly the next morning the neck might be sore for the bridle rein. Further, if by chance they missed the swollen eye, the man who rode or drove the horse could not possibly miss it, so there was a double safeguard over the neck method, and where there was a large number of horses those who had used the new method would prefer it to the old one. Major Rees-Mogg had referred to specific ophthalmia, and thank God they had not got it here. In France and Italy they only got it in certain districts, it was the disease they were most afraid of, and the province his hospital was in was one of the worst infected. The French thought it of rheuatic origin, and the Italians put it down as a forage borne disease, but none could prove the theory. As Major Turner said, when once they got it in a horse it usually meant that it would eventually be marked for the butcher. Some thought it was a fly which carried it from horse to horse.

The question of clipping was one which exercised their minds very much. In Italy they got over the mange question splendidly by having a Commander-in-Chief who thoroughly believed in clipping; and they had the number of mangy horses down to 35 when they had to do the final disposal. The Veterinary Service could claim to have done wonders with Glanders and mange. The question of the disposal of horses had been brought up and that was another service they could plume themselves on. The work of disposal—abattoir, sale, and destruction rested with the R.A.V.C. and they saved the taxpayer hundreds of thousands of pounds by proper disposal. In Italy his average price for a cart horse of the Shire tpye was £75 live weight, for the butcher. The most made was £84; and the average £75. All were useless for further work in the army. In the town in which he was situated there were three horse butchers bitterly opposed to one another and they offered one against another. The mules averaged about £40, the butchers objected because they said he put the animals on the scale after feeding and watering them, and one man who bought alive at so much per kilo grumbled because the animal he bought had 42 kilos of sand in it (laughter).

Professor WOOLDRIDGE proposed a hearty vote of thanks to the Author, and this was carried.

The PRESIDENT called attention to the fact that the second reading of the Veterinary Surgeons' Act Amendment Bill was down for that night, and pointed out the numerous misleading and untrue statements being made by the opponents of the Bill. He urged all present to use the influence they possessed with members of Parliament to get the Bill through.

HUGH A. MACCORMACK, Hon. Sec.

YORKSHIRE DIVISION.

A meeting of the Yorkshire Veterinary Medical Society was held at the Hotel Metropole, Leeds, on Friday January 30th. President, Mr. S. E. Sampson, Sheffield, in the chair.

Mr. Clarkson, Hon. Sec. read the minutes of the previous meeting, which were passed as read.

Letters apologising for non attendance were read from Messrs. J. McKinna, President R.C.V.S., J. Abson, F. W. Garnett, W. P. Weston, R. Hayes and G. H. Pollock. Also a telegram from Capt. Oxspring, R.A.V.C, regretting his inability to attend.

Communication from Royal Sanitary Institute was read suggesting that two delegates be sent to Congress at Birmingham on July 19th to 24th, 1920. Last year the Society did not send a delegate. The Council suggested that two delegates be sent this year, viz. Messrs. Sampson, Sheffield, and Clarkson, Garforth, and that an allowance of £2 2s. each be made in addition to the necessary subscription to the Institute.

Mr. Bowes proposed that two delegates be sent.

Mr. Dixon seconded, but said that allowance of two guineas, as proposed was insufficient. It was difficult to get members to attend Preventive Medicine sections. He hoped that the members would attend this Conference and take their part amongst medical men, as he was sure that the up-to-date veterinary surgeon could add considerably to the general store of knowledge. (The action of Council was confirmed).

NOMINATION AND ELECTIONS.

Mr. Crawford, Leeds, proposed Mr. Gentle, Otley. Mr. Bowman proposed and Mr. Pollard seconded election of Mr. Good, Scarborough, and Mr. Scott, Pontefract. (Carried unanimously).

RE ELECTION OF COUNCIL, R.C.V.S.

Mr. Crawford proposed that Society unite with Lancashire and Eastern Counties Associations. Mr. Wharam seconded.

Mr. G. Bowes proposed that Yorks. V.M.S. give whole hearted support to Mr. Clarkson as official candidate. Mr. Sampson seconded (Carried).

PRESIDENTIAL ADDRESS.

By Mr. S. E. SAMPSON, Sheffield.

Gentlemen,—I must thank you for the honour you have again done me in asking me to be your President for the fourth year in succession, but while appreciating to the full your wishes, I must candidly state that I think your choice is not a wise one. It is not expedient that one man should remain President for such a length of time It bars the way for men who ought to occupy the chair as their turn comes along, and also it prevents us from hearing the views of different men when occupying the position. We have other speakers to follow to-day, and I shall only refer briefly to one or two matters before the profession at the moment.

To my mind the matter arising out of last meeting of Council R.C.V.S. stands out prominently for discussion by us. I refer to the grading of milk. The inference that one might fairly draw from the report of the proceedings is that the authorities consider private practitioners quite unfit to test cattle for Tuberculosis, because, as one or two speakers inferred, slight irregularities, probably only in a very small number of cases, had occurred. Surely in all fairness to the parties concerned such actions should have been brought to light and the offenders duly dealt with by our Council, who have plenty of powers to deal with such matters.

In the testing of cattle and the alleged irregularities, who is to blame? Is the veterinary surgeon or are the authorities the guilty party? There may be, as in all other professions, a few black sheep among us. For them I have no excuse. As to the others, are they not subject at times to actions by the owners of the animals in giving tuberculin before the period of testing and so causing a faulty test?

Taking the authorities, have they not had it pointed out to them innumerable times that tuberculin ought to be strictly under their control, and only allowed to duly qualified veterinary surgeons, with the necessary returns to follow. This they have not done and I consider that the authorities are more to blame than the private practitioner who may, as I have already said, get a faulty test due to conditions over which he has no control, and it is to be greatly regretted that such a statement regarding private practitioners should have reached the ears of the Ministry of Health.

A question we might consider is part-time versus full-time Inspectors under the Ministry of Agriculture. This is a very debatable problem, and naturally those holding appointments will not care to lose them. And here, again, there may be some part-time men who have not played the game with regard to their neighbour's clients, but on the whole I think the majority have carried out their duties in a strictly loyal manner to their neighbours, and have not tried to use their position to get new clients. I am strongly of opinion that in the matter of a client choosing his veterinary adviser the bias goes heavily against the veterinary surgeon who is not an inspector under the authorities. From this point of view whole-time inspectors would be infinitely preferable to our present system of inspection.

Judging from the number of students now at, and joining the colleges, one wonders what is going to be done to find them employment when qualified. We are told that we want some four hundred men to fill up the vacancies, but either from lack of knowledge of the subject, or some other cause, I cannot see where all these men are going to get a living, considering the numbers of horses which are being replaced by motor traction.

The finances of our College have been well supported during the critical times we have passed through, and now with all these students at College, they should be sailing through smoother waters. I notice Mr. Mulvey did not give us any figures at the last Council meeting with regard to the amount of money the examination fees of these students would come to, or what they were going to do with the money when received and whether it is still necessary for us to continue our voluntary efforts or not. Perhaps some of our councillors will be able to enlighten us on this matter.

A great many of our roads are in a most deplorable state for horse traffic, a fact which a good many of us are apt to forget especially when travelling in a car. We must not lose sight of the fact that every horse driven off the road in consequence of the slippery surface thereof means less work for some of us. I think we can and ought to back up all efforts to remedy the evil by never missing a chance to put the matter fairly before our local Councils and Surveyors. Recently a deputation was sent to the Council at Sheffield with regard to the state of the roads. The visit resulted in good being done, and the Council altered roads for the better wherever they could.

Thanking you for your kind attention, I will ask you to join in discussion in order that we may exchange views.

(*To be concluded.*)

R.C.V.S. WAR MEMORIAL.

The Secretary begs to acknowledge the receipt of the following donations, or promises of donations :—

Appleton, A. F., Col.	£1	1	0
Bloye, P. W.	1	1	0
Forsyth, A. B.	2	2	0
Gofton, A.	2	2	0
Harvey, F. T.	3	3	0
Heath, F. E.	2	2	0
Holmes, R. P.	2	0	0
Priston, W. H.	2	2	0
Reynard, J. N.	5	0	0
Reeks, H. C.	5	5	0
Rider, J. W.	1	1	0
Roots, W.	5	5	0
Sheather, C. H.	10	10	0
Weston, W. P.	1	1	0
Previously reported	405	1	0
	£448	16	0

SUBSCRIPTIONS TO R.C.V.S.

The Secretary of the Royal College of Veterinary Surgeons begs to acknowledge the receipt of the following subscriptions for 1920. In each case the amount is £1 1s., except where otherwise indicated.

Cockburn, R., Nottingham
Edmondson, W., Harrogate
Fewings, A. B., Ashford
Finch, T. A. McC., Rathfriland
Harvey, F. T., St. Columb, Cornwall
Hicks, T., Sleaford, 1919, 1920 £2 2s.
Raymond, R. W., Lt.-Col.
Roots, W., London, S.E. 1.
Taylor, J., Cathkin-by-Rutherglen
Taylor, J. F., Cathkin-by-Rutherglen
Weston, W. P., York

Amt. Mar. 17	£693	12	5
	£706	4	5

Mar. 24.

ARMY VETERINARY SERVICE

Extracts from *London Gazette*

REGULAR FORCES. ROYAL ARMY VETERINARY CORPS

WAR OFFICE, WHITEHALL, Mar. 22.

The King has been pleasad to confer the Territorial Decoration upon the follg. offrs. who have been duly recommended for the same under the terms of the Royal Warrant dated Aug. 17, 1908, as modified by the Royal Warrant dated Nov. 11, 1918:—

Maj. W. Logan, O.B.E., attd. Lovat Scouts

Mar. 19.

The following temp. Capts. relinquish their commns. on completion of service, and retain the rank of Capt. :—H. R. Allen (Feb. 10); J. J. M. Barry (Feb. 13); E. V. Hobbs (Dec. 28, 1919); J. Ker (Nov. 7, 1919); B. B. Loel (Feb. 10); W. S. Petrie (Oct. 22, 1919); J. A. Power (Oct. 17, 1919); D. H. Wood (Feb. 5).

Mar. 23.

GENERAL RESERVE OF OFFICERS.

Maj. A. England (late actg. Lt.-Col.) to be Lt.-Col. (Jan 15, 1919).

VETERINARY SURGEONS AND MILK EXAMINATION.

To the Editor of The Veterinary Record.

Sir,—With the general remarks in your foot-note to my letter on this subject everyone will agree, but they have little application to the point at issue. The report in question stated that the demonstration was given in "*the* method of finding tubercle in milk." That, one would naturally conclude was the ordinary method generally adopted. If any novelty was introduced, it has not been recorded. The point is that it is a mistake for veterinary surgeons—who should themselves be recognised as authorities on the subject—to attend demonstrations of this class by medical officers. Such action is not collaboration. Unfortunately it leaves itself open to a very different interpretation. As to how the average medical man is likely to interpret it, kindly allow me to quote from your editorial columns (vol. 18, No. 887). There your distinguished predecessor stated : "We have all friends in the 'sister profession' whom we admire and who treat us as friends. But when it comes to business—especially such business as brings the Medical and Veterinary professions into the closest contact—we are

invariably treated with distrust, and our aspirations obstructed." "In hardly a single case has it been known that a M.O.H. has assisted the appointment of a veterinary surgeon—unless he can have the office made subservient to his direction." "We never knew a M.O.H. who failed to disparage veterinary work in his district." Apparently the editorial outlook has undergone some change since these words were written, but unfortunately the conditions which prompted them remain unaltered.—I am, Sir, yours truly,

"PROGRESS."

[Our correspondent appears to suggest that the veterinary profession has gained nothing in public estimation since 1905. In that we do not concur. Possibly our correspondent has some unhappy experience: but we hold that conditions have improved—there is evidence in several directions, *e.g.* the Newcastle Congress of last year; and that the present levelling up will not be helped by fomenting a spirit of antagonism.]

THE UNIVERSITY OF LIVERPOOL.
EXAMINATION LISTS, MARCH, 1920

FACULTY OF MEDICINE

Degree of B.V.Sc., Second Examination.

Part I: Hargreaves, C., Hewetson, H. R., Manley, F. H., *Vety. Anat.*, Matthews, H. T., *Vety. Anat.*

The subject in italics after a candidate's name indicates distinction.

Part II: Hargreaves, C., Manley, F. H., Matthews, H. T.

Diploma in Veterinary Hygiene.

Armstrong, W. E., Hindmarsh, W. L., Hughes, H. V. Jackson, S. T., Williams, J. L.

EDWARD CAREY, Registrar.

Among the successful candidates at the Final Examination for the Degrees of M.B.Ch.B. was Mary S. Share Jones, LL.B., B.A.

Public Health Laboratory,
York Place, Manchester.

The following gentlemen have obtained the Diploma in Veterinary State Medicine of the University of Manchester:—Macgregor, W. A., Sewell, E. J. B.

SHERIDAN DELEPINE.

Foot-and-Mouth Disease.

An authoritative announcement by the Ministry of Agriculture states that:—"Only two small areas covering a few square miles at Bicester, Oxon, and Wendover, Bucks, remain scheduled as prohibited districts. There are no cases at either place, but as the disease has disappeared only recently in these districts, precautions are still in force, and will remain so until re-stocking can safely be effected.

Some misapprehension as to the facts would appear to exist, and it has even been reported in Scotland and the English border counties that the disease was spreading and getting beyond control. It is hoped that the statement now made will dispel these illusions, and remove the fears of the Scottish pedigree stock breeders."

DISEASES OF ANIMALS ACTS 1894 TO 1914, SUMMARY OF RETURNS.

Period.		Rabies. Cases Confrmd Dogs	Rabies. Cases Confrmd Other Anmls	Anthrax Out-breaks (a)	Anthrax Animals.	Foot-and-Mouth Disease. Out-breaks (a)	Foot-and-Mouth Disease. Animals.	Glanders.† Out-breaks (b)	Glanders.† Animals.	Parasitic Mange. Out-breaks (b)	Parasitic Mange. Animals.	Sheep Scab. (b)	Swine Fever. Out-breaks (a)	Swine Fever. Slaughtered. *
GT. BRITAIN. Week ended Mar. 20				15	15			1	1	109	177	11	38	11
Corresponding week in	1919	2		5	5					131	247	4	19	5
	1918			12	14			1	1	115	211	5	14	2
	1917			14	17					59	121	5	44	26
Total for 12 weeks, 1920		3		119	146	89	2001	10	17	1717	3104	243	514	182
Corresponding period in	1919	24	2	48	66	19	1033	1	1	1976	3987	181	257	89
	1918			83	97			8	29	1753	3407	194	180	70
	1917			167	198			7	12	957	2028	310	507	180

(a Confirmed. (b) Reported by Local Authorities.
Board of Agriculture and Fisheries, Mar. 16, 1920

† Counties affected, animals attacked:—Wilts 1.
Excluding outbreaks in army horses.

IRELAND. Week ended **Mar. 13.**	...	...	...	...	...	1	Outbreaks 6	7		
Corresponding Week in 1919 ...	...	...	...	...	...	...	3	5	1	5
Corresponding Week in 1918 ...	...	...	...	...	...	...	8	8		
Corresponding Week in 1917 ...	...	...	...	...	...	...	2	8	7	33
Total for 11 weeks, 1919 ...	...	...	...	...	1	3	47	104	2	4
Corresponding period in 1919 ...	...	...	...	...	1	1	38	103	13	47
Corresponding period in 1918 ...	1	1	...	...	...	...	41	131	4	22
Corresponding period in 1917 ...	2	2	...	...	1	1	11	145	49	310

Department of Agriculture and Technical Instruction for Ireland (Veterinary Branch), Dublin, Mar. 15, 1920.

NOTE.—The figures for the Current Year are approximate only. * As Diseased or Exposed to Infection